AMENDMENTS TO THE CLAIMS:

This listing of claims will replace all prior versions, and listings, of claims in the application.

Listing of Claims:

138. A method of identifying a compound that putatively enhances, inhibits, or elicits bitter taste in a human subject comprising:

(1) screening one or more compounds in a binding assay which identifies compounds that specifically bind to or inhibit the specific binding of a ligand to a human T2R taste receptor polypeptide wherein said T2R taste receptor selected from the group consisting of:

(a) a T2R polypeptide comprising the amino acid sequence contained in any one of SEQ. ID. NOS: 2, 4, 6, 8, 10, 12, 14, 16, 18, 20 and 24;

(b) a fragment of a T2R polypeptide according to (a) which is at least 25 amino acids in length;

(c) a T2R polypeptide which possesses at least 90% sequence identity with a polypeptide having a sequence selected from the group consisting of those contained in any one of SEQ. ID. NOS: 2, 4, 6, 8, 10, 12, 14, 16, 18, 20, and 24; and

(d) a T2R polypeptide encoded by a nucleic acid sequence that specifically hybridizes under stringent hybridization conditions to a nucleic acid sequence selected from the group consisting of SEQ. ID. NOS: 1, 3, 5, 7, 9, 11, 13, 15, 17, 19 and 23; and

(2) identifying a compound as putatively enhancing, inhibiting or eliciting a bitter taste sensation in a human subject based on its specific binding

to at least one human T2R polypeptide according to (a), (b), (c) or (d) or its modulation (inhibitor or enhancement) of the specific binding of another ligand to at least one T2R polypeptide selected from the T2R polypeptides according to (a), (b), (c) or (d).

139. The method of claim 138, wherein the human T2R polypeptide possesses an amino acid sequence selected from those contained in SEQ. ID. NOS: 2, 4, 6, 8, 10, 12, 14, 16, 18, 20, and 24.

140. The method of claim 138, wherein the T2R polypeptide is encoded by a nucleic acid sequence selected from the group consisting of SEQ. ID. NOS: 1, 3, 5, 7, 9, 11, 13, 15, 17, 19 and 23, or a fragment thereof comprising at least 100 contiguous nucleotides thereof.

141. The method of claim 138, wherein the T2R polypeptide is encoded by a nucleic acid sequence that hybridizes to a nucleic acid sequence selected from the group consisting of SEQ. ID. NOS: 1, 3, 5, 7, 9, 11, 13, 15, 17, 19 and 23 under stringent hybridization conditions.

142. The method of claim 138, wherein the T2R polypeptide exhibits at least 90% sequence identity to a polypeptide having a sequence selected from those contained in any one of SEQ. ID. NOS.: 2, 4, 6, 8, 10, 12, 14, 16, 18, 20, and 24.

143. The method of claim 142, wherein said T2R polypeptide exhibits at least 95% sequence identity to one of said T2R polypeptides.

144. The method of claim 142, wherein said T2R polypeptide exhibits at least 98% sequence identity to one of said T2R polypeptides.

145. The method of claim 138, wherein said T2R polypeptide is in solution.

146. The method of claim 138, wherein said T2R polypeptide is attached to a solid phase.

147. The method of claim 138, wherein said T2R polypeptide is in a lipid bilayer or vesicle.

148. The method of claim 138, wherein said T2R polypeptide is expressed by a cell.

149. The method of claim 148, wherein said cell is a eukaryotic cell.

150. The method of claim 148, wherein said cell is a prokaryotic cell.

151. The method of claim 149, wherein said eukaryotic cell is a yeast, insect, amphibian or mammalian cell.

152. The method of claim 151, wherein the mammalian cell is a CHO, HEK-293, COS cell or Xenopus oocyte.

153. The method of claim 138, wherein binding of said compound results in a detectable change in T2R polypeptide conformation.

154. The method of claim 153, wherein said change in conformation is detected by NMR spectroscopy.

155. The method of claim 153, wherein said change in conformation is detected by fluorescence spectroscopy.

156. The method of claim 138, wherein said T2R polypeptide is expressed by a cell that further expresses a G protein that couples therewith.

157. The method of claim 156, wherein said G protein is $G_{\alpha 15}$, $G_{\alpha 16}$ or gustducin.

158. The method of claim 138, wherein said binding assay detects the effect of said compound on the binding of a radioactively or fluorescently labeled ligand that specifically binds to said T2R polypeptide.

159. The method of claim 158, wherein said method detects displacement of said labeled ligand from said T2R polypeptide by fluorescence polarization or a FRET assay.

160. The method of claim 138 which further comprises having a human subject ingest said compound and determine its effect on bitter taste.

161. The method of claim 138, wherein said T2R polypeptide has the amino acid sequence contained in SEQ. ID. NO:2.

162. The method of claim 138, wherein said T2R polypeptide has the amino acid sequence contained in SEQ. ID. NO:4.

163. The method of claim 138, wherein said T2R polypeptide has the amino acid sequence contained in SEQ. ID. NO:6.

164. The method of claim 138, wherein said T2R polypeptide has the amino acid sequence contained in SEQ. ID. NO:8.

165. The method of claim 138, wherein said T2R polypeptide has the amino acid sequence contained in SEQ. ID. NO:10.

166. The method of claim 138, wherein said T2R polypeptide has the amino acid sequence contained in SEQ. ID. NO:12.

167. The method of claim 138, wherein said T2R polypeptide has the amino acid sequence contained in SEQ. ID. NO:14.

168. The method of claim 138, wherein said T2R polypeptide has the amino acid sequence contained in SEQ. ID. NO:16.

169. The method of claim 138, wherein said T2R polypeptide has the amino acid sequence contained in SEQ. ID. NO:18.

170. The method of claim 138, wherein said T2R polypeptide has the amino acid sequence contained in SEQ. ID. NO:20.

171. The method of claim 138, wherein said T2R polypeptide has the amino acid sequence contained in SEQ. ID. NO: 22.

172. The method of claim 135 which further compounds step (3) wherein the effect of the identified compound is assayed in a functional assay that evaluates the effect of said compound on the activation of said T2R polypeptide.